REMARKS/ARGUMENTS

Introduction:

Claims 7 and 9 are amended, and claims 34-42 are newly added. Claims 1 and 3-42 are now pending in the application. (Claim 2 was previously canceled.) Applicant respectfully requests reexamination and reconsideration of the application.

Initially, Applicant notes that claims 7 and 9 were not amended for reasons of patentability but to address an objection to those claims.

Allowable Subject Matter:

Applicant acknowledges with appreciation the Examiner's indication that claims 1, 3-6, 8, and 10-13 are allowable and claims 14-17, 19-25, and 28-30 contain allowable subject matter. As discussed below, Applicant believes that all of the pending claims are now in condition for allowance.

Objection To Claims:

Claims 7 and 9 were objected to on the grounds that they are redundant. Applicant has amended those claims to address the objection and believes that the objection has been overcome.

Statutory Subject Matter:

Claims 14-17, 22-25, and 26-33 were rejected as directed to non-statutory subject matter. Applicant respectfully traverses this rejection. As stated in the "Interim Guidelines For Subject Matter Eligibility" by Examiner Robert Weinhardt, which are posted on the USPTO's web site, claims drawn to a process—which is one of the four enumerated categories of patentable subject matter in 35 USC 101—are statutory unless the claims are "directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature."

Turning first to independent claim 14, that claim is directed to a method that is more than a mere abstract idea, a natural phenomenon, or a law of nature. For example, claim 14 recites "selecting an initial frequency for a calibration signal," "driving said calibration signal into a plurality of communications channels," and "sweeping said calibration signal through a range of frequencies." Such steps do not describe a mere abstract idea, natural phenomenon, or law of

nature. Rather, such steps contemplate concrete, physical actions that produce real results. Indeed, how are such real, physical steps as driving a calibration signal into a plurality of channels and sweeping the calibration signal through a range of frequencies mere abstract ideas, mere natural phenomena, or mere laws of nature? For at least these reasons, claim 14 and its dependent claims are directed to a statutory process.

Moreover, Applicant has added claims 40-42, which depend from claim 14 and recite uses of the propagation delay calculated in claim 14. New claims 40-42 should, without question, be statutory.

Independent claim 22 also recites steps that are not indicative of a mere abstract idea, natural phenomenon, or law of nature. Examples of such steps include "selecting an initial frequency for a calibration signal," "driving said calibration signal into a plurality of communications channels." and "sweeping said calibration signal through a range of frequencies." Thus, for generally the same reasons as discussed above with respect to claim 14, claim 22 and its dependent claims are directed to a statutory process.

Moreover, Applicant has added claims 37-39, which depend from claim 22 and recite uses of the propagation delay calculated in claim 22. New claims 37-39 should, without question, be statutory.

Independent claim 26 similarly recites steps that are not indicative of a mere abstract idea, natural phenomenon, or law of nature. An example is "a calibration signal driven onto a proximal end of a transmission line while said transmission line is terminated in a known impedance that causes a particular condition in a varying standing wave on said transmission line." For at least this reason, claim 26 and its dependent claims are directed to a statutory process.

Moreover, Applicant has added claim 36, which depends from claim 26 and recites that the impedance calculated in claim 22 is presented to a user. New claim 26 should, without question, be statutory.

Rejections In View Of Prior Art:

Claim 18 was rejected under 35 USC 103(a) as obvious in view of US Patent No. 5,811,655 to Hashimoto et al. ("Hashimoto") and US Patent No. 6,594,273 to McGibney ("McGibney"). In addition, claims 26 and 27 were rejected under 35 USC 102(b) as anticipated

by US Patent No. 6,449,568 to Gerrish ("Gerrish"). Applicant respectfully traverses these rejections.

Turning first to the rejection of claim 18, the Examiner acknowledged that Hashimoto lacks both envelope detectors and waveform detectors. To make up for these deficiencies in Hashimoto, the Examiner asserted that it would be obvious to replace the delay time counter 82 in Hashimoto with the envelope detector 78 and peak detector 98 of McGibney "because both components are used for delay calibration." Contrary to the assertion by the Examiner, however, the delay counter 82 of Hashimoto, on one hand, and the envelop detector 78 and the peak detector 98 of McGibney, on the other hand, are not used for the same purposes.

Hashimoto's delay counter 82 determines the propagation delay of a signal from OR gate 75 to terminal 54n. (See Hashimoto col. 2, lines 15-17.) In sharp contrast, the purposes of McGibney's envelope detector 78 and peak detector 98 have nothing to do with counting the time delay of a signal. Rather, the purpose of McGibney's envelope detector is to convert IF pulses to broadband to create a magnitude delay profile of other terminals on a network. (See McGibney col. 8, lines 42-45.) The stated purposes of McGibney's peak detector 98 are several, including determining the largest value in a series of samples from an A/D converter 80 (McGibney col. 9, lines 14-16), finding a synchronization slot when connecting to a network (McGibney col. 9, lines 18-20), and detecting a number of special conditions, such as loss of a synchronization signal and the presence of two or more closely spaced terminals on the network (McGibney col. 9, lines 25-65). There is no need in Hashimoto for any of the foregoing functions performed by McGibney's envelope detector 78 and peak detector 98 and therefore no motivation to replace Hashimoto's delay time counter 82 with McGibney's envelope detector 78 and peak detector 98. Indeed, Hashimoto's system would not function properly if such a replacement were made.

Thus, the only possible basis for the combination of Hashimoto and McGibney is impermissible hindsight reconstruction. Therefore, it would not have been obvious to combine Hashimoto and McGibney. For this reason alone, the rejection of claim 18 should be withdrawn.

In response to the foregoing argument, the Examiner acknowledged that the envelope detector 78 of McGibney generates a delay profile and therefore does not perform the same function as Hashimoto's delay counter 82, which generates a propagation delay of a signal between two points in a circuit. The Examiner nevertheless continued to assert that it would

have been obvious to replace Hashimoto's delay counter 82 with McGibney's envelope detector 78 because the delay profile produced by McGibney's envelope detector 78 can allegedly be used to calculate a propagation delay. Nevertheless, the fact, acknowledged by the Examiner, that McGibney's envelope detector 78 does not perform the same function as Hashimoto's delay counter 82 undermines the motivation for replacing Hashimoto's delay counter 82 with McGibney's envelope detector 78. For example, even assuming only for the sake of argument that McGibney's envelope detector 78 can be used to determine a propagation delay (which Applicant disputes), by the Examiner's admission, McGibney's envelope detector 78 does so indirectly by first creating a delay profile and then, through a series of complex calculations, calculates propagation delays from the delay profile. Why would a person skilled in the art replace Hashimoto's delay counter 82—which directly determines propagation delay by simply counting time—with the complex, multiple step process required of McGibney's envelop detector 78? A person of skill would never be motivated to make such a substitution.

Moreover, even if combined (which Applicant asserts is improper as discussed above), the combination of Hashimoto and McGibney fails to disclose all of the recitations in claim 18. Claim 18 recites a signal generator "configured to sweep a calibration signal from an initial frequency through a range of frequencies." Hashimoto fails to teach or suggest that its timing generator 90 (which the Examiner equated with the signal generator of claim 18) sweeps a calibration signal from an initial frequency through a range of frequencies. Rather, Hashimoto teaches that the timing generator 90 does nothing more than generate a pulse signal. (Hashimoto col. 2, lines 15-17.) McGibney does not make up for this deficiency in Hashimoto. For this additional reason, the rejection of claim 18 should be withdrawn.

In response, the Examiner asserted that Hashimoto sweeps the pulses output by the timing generator 90 (which the Examiner equated with the signal generator of claim 18) "by means of adjusting the delay element." For support, the Examiner cites Hashimoto col. 2, lines 15-38. In rejecting claim 18, the Examiner equated Hashimoto's timing generator 90 with the signal generator of claim 18. Thus, to maintain his rejection, the Examiner must show that a calibration signal output by Hashimoto's timing generator 90 is swept "from an initial frequency through a range of frequencies." Merely adjusting the delay of element 55 in Figure 1 of Hashimoto does not amount to sweeping signals output from the timing generator 90 through a range of frequencies. Moreover, as described in col. 2, lines 29-38, the delay element 55 is

adjusted not during calibration—and thus not while the timing generator 90 is outputting pulses—but during assembly or manufacture of the product. (Hashimoto col. 2, lines 32-37.)

Turning now to claim 26, Gerrish fails to teach or suggest several elements of claim 26.

For example, claim 26 recites "determining a first frequency of a calibration signal driven onto a proximal end of a transmission line while said transmission line is terminated in a known impedance that causes a particular condition in a varying standing wave on said transmission line." The Examiner cites Gerrish column 3, lines 32-40 as allegedly teaching the foregoing features of claim 26. Claim 26, however, recites "determining a first frequency." Gerrish does not ***determine*** a frequency. Rather, Gerrish drives a ***known*** frequency and ***determines*** voltage and current pickup values for the known frequency. (Gerrish col. 3, lines 33-36.) Thus, at column 3, lines 32-40, Gerrish teaches determining a voltage and current pickup values—not a frequency that causes a particular condition in a standing wave on a transmission line.

As another example, Gerrish does not ***determine*** a second frequency. Rather, at column 3, lines 45-49, Gerrish teaches driving "a particular selected operating frequency" and applying stored correction coefficients to voltage and current pickup signals" to ***determine*** corrected voltage, current, and impedance values. Thus, at column 3, lines 45-49, Gerrish teaches determining corrected voltage, current, and impedance values—not a frequency that causes a particular condition in a standing wave on a transmission line.

For at least the foregoing reasons, Gerrish fails to anticipate claim 26.

In response to the foregoing argument, the Examiner asserted that the word determine can mean "being presented with" and "reading in a spec." The Examiner, however, does not cite a dictionary or other authority to support such definitions of the word "determine." Moreover, "being presented with" or "reading in a "spec." are not consistent with the use of the phrase "determining a . . . frequency of a calibration signal" in the specification. Thus, recitations in claim 26 to "determining a . . . frequency of a calibration signal" are not anticipated by a user merely reading in a specification or merely being presented with the frequency.

Moreover, dependent claims 32 and 33 further define "determining a . . . frequency of a calibration signal" recited in claim 26 and are clearly not met by merely reading or being presented with a frequency. In addition, new claims 34 and 35 further define "determining a . . . frequency of a calibration signal" recited in claim 26 and cannot be met by merely reading or being presented with a frequency.

Claim 27 and 31-36 depend from claim 26 and are patentable over Gerrish at least because of their dependency from claim 26.

Conclusion:

In view of the foregoing, Applicant submits that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicant's attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

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